

We claim:

1. A private instant communications processing element for use in conjunction with a first carrier network, the first carrier network providing wireless access to a first plurality of wireless user devices, the first plurality of wireless user devices comprising at least one first private user device, and being configured to route signals from the at least one first private user device to the private instant communications processing element, the private instant communications processing element being adapted to:

receive instant communications signals from the at least one first private user device via the first carrier network;

15 perform instant communications signal processing upon the received instant communications signals for the at least one first private user device and to transmit instant communications signals to the at least one first private user device via the first carrier network.

20 2. The private instant communications processing element of claim 1 further adapted to:

assign a generic identifier for the at least one first private user device to be included in a carrier network delivered instant communications session;

25 generate a combined signal for the at least one first private user device to be included in the network delivered instant communications session, and to transmit the combined signal to the carrier network using the generic

identifier for inclusion as an input to the network delivered instant communications communication session.

3. The private instant communications processing element of claim 2 wherein the combined signal is
5 transmitted to a PoC (push-to-talk over cellular) server within the carrier network where the combined signal is treated as coming from a single user.

4. The private instant communications processing element of claim 1 for use in further conjunction with a
10 second carrier network, the second carrier network providing wireless access to a second plurality of user devices, the second plurality of user devices comprising at least one second private user device, and being configured to route signals from at least one second private user device to the
15 private instant communications processing element, wherein the private instant communications processing element is further adapted to:

receive signals from the at least one second private user device via the second carrier network;

20 perform instant communications processing on signals received from the at least one first private user device and the at least one second private user device to produce instant communications signals for transmission to the at least one first private user device and to produce
25 instant communications signals for transmission to the at least one second private user device.

5. The private instant communications processing element of claim 4 where the first plurality of user devices comprises at least one first regular user device, and the

second plurality of user devices comprises at least one second regular user device, adapted to:

assign a first generic user identifier appearing as a single user within a first instant communications session established by the first carrier network and to assign a second generic user identifier appearing as a single user within a second instant communications session established by the second carrier network;

combine all second regular user device signals and 10 all first and second private user device signals into a first combined signal and sending the first combined signal to a carrier instant communications processing element of the first carrier network which in turn sends it to first regular user devices via the first carrier network using the 15 first generic identifier;

combine all first regular user device signals and all first and second private user device signals into a second combined signal and sending the second combined signal to a carrier instant communications processing 20 element of the second carrier network which in turn sends it to second regular user devices via the second carrier network using the second generic identifier;

combine signals from a carrier instant communications processing element of the first carrier 25 network and a carrier instant communications processing element of the second carrier network into a third combined signal and sending the third combined signal to first private user devices via the first network and to the second private user devices via the second network.

6. The private instant communications processing element of claim 5 further adapted to disclose a number of participants behind the first generic identifier to carrier instant communications processing element of the first 5 carrier network for billing purpose.

7. The private instant communications processing element of claim 2 further adapted to provide enhanced security features for the at least one first private user device.

10 8. The private instant communications processing element of any one of claims 1 to 7 wherein:

the instant communications comprises push-to-talk over cellular communications.

9. The private instant communications processing 15 element of any one of claims 1 to 7 wherein:

the instant communications comprises half-duplex communications.

10. The private instant communications processing element of any one of claims 1 to 7 wherein:

20 the instant communications comprises instant text messaging.

11. The private instant communications processing element of any one of claims 1 to 7 comprising a GLMS (group list management server), a presence server and a PoC server.

25 12. The private instant communications processing element of claim 9 wherein the GLMS, the presence server and the PoC server are for connection to the first carrier network through standard interfaces.

13. A system comprising:

a first carrier network delivering wireless access to regular user devices and private user devices, and comprising a CICP (carrier instant communications processing element) adapted to deliver an instant communications in respect of a plurality of input signals;

a PICP (private instant communications processing element) adapted to combine signals from at least one private user device into a combined generic signal for inclusion as one input to an instant communications session delivered by said carrier network.

14. The system of claim 13 wherein:

the instant communications comprises push-to-talk over cellular communications.

15. 15. The system of claim 13 wherein:

the instant communications comprises half-duplex communications.

16. The system of claim 13 wherein:

the instant communications comprises instant text messaging.

17. The system of claim 13 further comprising:

a second carrier network delivering wireless access to regular user devices and private user devices, and comprising a CICP (carrier instant communications processing element) adapted to deliver instant communications in respect of a plurality of input signals;

the PICP (private instant communications processing element) being further adapted to combine signals from at least one private user device into a combined generic signal for inclusion as one input to an instant 5 communications session delivered by said second carrier network.

18. The system of claim 13 adapted to set up an instant communications session by:

the PICP receiving a request from one of the at 10 least one private user device containing a user identification and containing invitees comprising other private users and/or regular users;

sending the invitation to the invited private network users via the first carrier network;

15 receiving acceptances or rejections of the invitation and adding users to a list of users for the session;

assigning a generic identifier for the private users on the session;

20 sending an invitation to regular invitees via the carrier instant communications processing element containing the generic identifier and identifiers of the regular invitees;

25 the carrier instant communications processing element establishing an instant communications session including the generic identifier and the regular invitees that accepted the invitation.

19. The system of claim 13 adapted to set up an instant communications session by:

receiving a request from one of the private user devices containing a user identification and containing
5 invitees comprising other private users;

sending the invitation to the invited private network users via the carrier network;

receiving acceptances or rejections of the invitation and adding users to a list of users for the
10 session.

20. The system of claim 17 adapted to set up an instant communications session by:

receiving a request for instant communications, the request comprising an identifier of a user device making
15 the request, and containing invitees comprising a combination of one or more of private users on A (the first carrier network), regular users on A, private users on B (the second carrier network B), and regular users on B;

the PICP assigning a first generic identifier to
20 the first carrier network and a second generic identifier to the second carrier network;

the PICP sending the invitation to the private users on A and B via appropriate carrier network, receiving the private users acceptances/rejections and adding users to
25 each generic ID accordingly;

the PICP sending an invitation to any regular users on A through the CICP of A using the first generic ID;

the PICP sending an invitation to any regular users on B through the CICP of B using the second generic ID;

the CICP of network A establishing an instant 5 communications session between the regular users on A and a single generic identifier user having the first generic identifier;

the CICP of network B establishing an instant 10 communications session between regular users on B and a single generic ID user having the second generic identifier.

21. A wireless user device having wireless access via a carrier network, the wireless user device comprising:

a regular instant communications client adapted to 15 participate in carrier network delivered instant communications sessions;

a private instant communications client adapted to 20 participate in instant communications sessions via the carrier network through a private instant communications processing element.

22. The wireless user device of claim 21 wherein the regular instant communications client is a first push-to-talk over cellular client, and the private instant communications client is a second push-to-talk over cellular client.

23. The wireless user device of claim 21 wherein the private instant communications client will not release private information related to the communication sessions that the private instant communications client participates in to the carrier network while a regular instant

communications client in the same device also concurrently participates in a communication session.

24. A computer readable medium having processor executable instructions stored thereon for execution by a 5 wireless user device, and comprising:

a regular instant communications client adapted to participate in carrier network delivered instant communications sessions;

10 a private instant communications client adapted to participate in instant communications sessions via the carrier network through a private instant communications processing element.

25. A system of providing a PoC communication session including private user devices and regular user devices in 15 which signals of the private users are included in the PoC communication session in a manner that hides identities of the private user devices.